Cottle teaches two embodiments of an implant. In the first embodiment of Figs. 1-3, Cottle teaches "a semi-implant" with a leading end ("rear wall 15"). (See Cottle, col. 4, lines 61-62; Figs. 1-3). The leading end of the implant taught by Cottle in the first embodiment does not have a configuration where the third distance (as measured at the junction of the leading end and the interior side wall) is greater than the first distance (as measured along the mid-longitudinal axis) as recited in claim 102 of Applicant's claimed invention. In the second embodiment of Figs. 4-8, Cottle teaches an integral implant having a size similar to two of the semi-implants of the first embodiment. (Cottle, col. 4, lines 63-66; Figs. 4 and 8). According to the MPEP, "'[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' [citation omitted]." (MPEP § 2131 (May 2004)). The only implant with a width less than one-half of the maximum width of the adjacent vertebral bodies taught by Cottle is one in which the implant has a third distance equal to the first distance. (See Cottle, Fig. 1). No other leading end configuration for semi-implants is taught or suggested by Cottle. Accordingly, Applicant submits that independent claim 102 is novel over the disclosure of Cottle.

Independent claim 147 recites that the width of the implant is "less than approximately one-half of the maximum width of the adjacent vertebral bodies into which said implant is adapted to be inserted." Independent claim 147 further recites an interior facing side wall "adapted to be oriented toward another implant when inserted within the disc space," and "an exterior side wall opposite said interior side wall." The exterior facing sidewall includes "a straight portion along the length of said implant," and that the leading and trailing ends of the implant "are adapted to rest upon portions of the apophyseal rim when implanted." The first embodiment of the implant taught by Cottle does not disclose an exterior facing sidewall with a straight portion along the length of the implant. The second embodiment of the implant disclosed by Cottle has a width more than one-half the maximum width of the adjacent vertebral bodies into which the implant is adapted to be inserted. None of the embodiments disclosed by

Cottle teach or suggest an implant with a leading end and a trailing end adapted to rest upon portions of the apophyseal rim when implanted as recited in claim 147 of Applicant's claimed invention. Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 102-106, 108-135, 137-147, 149-168, and 172 under 35 U.S.C. § 102(b) as being anticipated by Cottle has been overcome.

The Examiner rejected claims 1, 2, 4-34, 36-42, and 101-174 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,113,638 to Williams et al. ("Williams") in view of U.S. Patent No. 5,192,327 to Brantigan ("Brantigan"). Applicant respectfully traverses the Examiner's rejection. Independent claim 1 recites an artificial spinal implant with a hollow interior "having a maximum dimension between said inner surfaces of said interior and exterior facing side walls and in a plane perpendicular to the mid-longitudinal axis of said openings greater than said maximum dimension of said opening." Williams teaches a pair of hemi-oval devices 30, 32 having anchoring elements for introduction into the endplates of the adjacent vertebral bodies. (Williams, col. 5, line 51 to col. 6, line 4; Fig. 2). Brantigan teaches a hemi-oval device 20 having "opposed side walls 21a, a rounded oval end wall 21b, a flat opposite end wall 21c and a central aperture 21d." (Brantigan, col. 4, lines 57-64; Fig. 2). Neither Williams nor Brantigan, whether alone or in proper combination, teach or suggest a hollow interior with a dimension as recited in independent claim 1 of Applicant's claimed invention. In Fig. 2 of Brantigan, the maximum dimension of the hollow interior between the inner surfaces of the walls 21b, 21c is the same as the maximum dimension of central opening 21d. (See Brantigan, Fig. 2).

Independent claims 102 and 147 recite an artificial spinal implant having interior and exterior facing side walls, "said exterior facing side wall including a straight portion along the length of said implant." Neither Williams nor Brantigan, whether alone or in proper combination, teach or suggest the exterior facing side wall having a straight portion as recited in claims 102 and 147. The exterior facing side wall in Williams is entirely curved along the length of the device. (See Williams, Fig. 2). Wall 21b of the Brantigan device is also entirely curved along the length of the device. (See Brantigan,

Fig. 2). Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 1, 2, 4-34, 36-42, and 101-174 under 35 U.S.C. § 103(a) as being unpatentable over Williams in view of Brantigan has been overcome.

Under the "Response to Arguments" section of the Office Action, the Examiner states that "[i]t is the Examiner's position that the teaching of 'the implantable device according to the present invention' being a hemi-device applies to all embodiments taught by Williams et al." (Office Action, page 2, paragraph 1). Applicant respectfully submits that the implantable device being a hemi-device cannot be applied to all embodiments as contended by the Examiner. Williams teaches that the embodiments of the implant shown in Figs. 5A and 7A each have an expansion mechanism. (See Williams, col. 7, lines 44-47 and Fig. 5A; and col. 8, lines 32-37 and Fig. 7A). Modifying the embodiments of Figs. 5A and 7A to be split into hemi-implants would interfere with the expansion mechanisms disclosed for each embodiment and would likely render the respective embodiments inoperable for the intended purpose as taught in Williams. (See MPEP § 2143.01, "The Proposed Modification Cannot Render the Prior Art Unsatisfactory For its Intended Purpose," page 2100-129, col. 2 (May 2004)).

Moreover, Applicant respectfully submits that any modification of the larger implant with expansion mechanism to be converted into two hemi-implants would require undue experimentation. (See MPEP § 2121.01 (May 2004)("[t]he disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation")). Applicant respectfully submits that any attempt to split the large implant shown in Figs. 5A and 7A in half while still retaining its expansion mechanism would require undue experimentation.

The Examiner also rejected claims 1, 2, 4-8, 11-34, 36-38, 40-42, and 101-174 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,609,635 to Michelson ("Michelson '635") in view of Brantigan.

Applicant respectfully submits that the motivation used to support the combination of Michelson '635 with Brantigan is inapplicable. The Examiner states in

the Office Action that "[i]t would have been obvious to one having ordinary skill in the art to have used the teachings of Brantigan to have formed the spinal implant of Michelson which confirms to the shape of vertebral surfaces in two *halves 'for usage in partial corpectomy operations and also side-by-side relation when an intermediate nerve space is needed (see column 4, lines 57 et seq)'*." (Office Action, paragraph bridging pages 5-6). Applicant respectfully submits that the Examiner's asserted motivation is inapplicable because Michelson '635 already accomplishes without modification what the Examiner states is the reason to combine the teachings of Michelson '635 with Kuntz, *i.e.*, "forming a spinal implant in two halves." Michelson '635 teaches the use of modular implants 400 that are inserted separately into the disc space. In particular, Michelson '635 teaches that "implant 400 has a width W that is substantially less than the width of the implants 100-300 such that a series of such implants 400 are used as the interbody spinal implant, each placed closely adjacent to one another to approximate the size of the removed disc." (Michelson, col. 10, lines 9-13; and Fig. 18). Accordingly, Applicant submits that one skilled in the art would not look to another reference for a teaching on forming a spinal implant in two halves when this feature is already taught by Michelson '635. (See MPEP § 2143.01, "the Prior Art Must Suggest the Desirability of the Claimed Invention" (May 2004)). Applicant submits that the rejection of claims 1, 2, 4-8, 11-34, 36-38, 40-42, and 101-174 under 35 U.S.C. § 103(a) as being unpatentable over Michelson '635" in view of Brantigan has been overcome.

Applicant submits that independent claims 1, 102, and 147 are patentable and that dependent claims 2-34, 36-42, 101, and 103-174 dependent from one of independent claims 1, 102, and 147, or claims dependent therefrom, are patentable at least due to their dependency from an allowable independent claim.

In view of the foregoing remarks, it is respectfully submitted that the claims are patentable. Therefore, it is requested that the Examiner reconsider the outstanding rejections in view of the preceding comments. Issuance of a timely Notice of Allowance of the claims is earnestly solicited.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this reply, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-3726.

Respectfully submitted,

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